

REMARKS/ARGUMENTS

In response to the above-identified Office Action dated January 16, 2004, Applicant has canceled claims 1 and 25 and has amended claims 2, 12, 13, 18, 26, and 27. Claims 2-24 and 26-29 remain pending in the present application.

For the reasons set forth more fully below, Applicant respectfully submits that the present claims are allowable. Consequently, reconsideration, allowance and passage to issue of the present application are respectfully requested.

Applicant has amended the Abstract to remove the phrase “are described” from line 2, as requested by the Examiner. Applicant respectfully submits that no new matter has been added. Accordingly, Applicant respectfully requests withdrawal of the objection to the Abstract.

112 Rejection

The Examiner rejected claim 18 under 35 U.S.C. 112, second paragraph, as being indefinite. Particularly, the Examiner states that to say a single play-out device comprises a cable head-end is indefinite and suggests that the claim include the play-out device within a cable head-end. Applicant has amended claim 18, as suggested by the Examiner. Applicant respectfully submits that no new matter has been added nor has the scope of the claim been changed. Accordingly, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. 112, second paragraph.

Cited Art Rejections

The Examiner rejected: claims 1, 12-16, 19-21, 25, and 27-29 under 35 U.S.C. 103(a) as being unpatentable over Copriviza et al (“Copriviza”) in view of Echeita et al (“Echeita”); claims 2, 22-24, and 26 under 35 U.S.C. 103(a) as being unpatentable over Copriviza in view of Echeita and further in view of Iggulden; claim 3 under 35 U.S.C. 103(a) as being unpatentable over Copriviza in view of

Echeita and Iggulden and further in view of Linnartz; claim 17 under 35 U.S.C. 103(a) as being unpatentable over Copriviza in view of Echeita and further in view of Caporizzo; claims 4-11 under 35 U.S.C. 103(a) as being unpatentable over Copriviza, Echeita, and Iggulden and further in view of Goodman et al ("Goodman"); and claim 18 under 35 U.S.C. 103(a) as being unpatentable over Copriviza and Echeita and further in view of Goodman. Applicant respectfully disagrees with the rejections.

In the present invention, automated monitoring of quality of service of digital video material being distributed and played occurs. The automated monitoring includes embedding a signature in each frame of the digital video material by a program source device control with computation of play-out statistics for the digital video material based on the signature by a program play-out device control. The present invention also includes utilizing a hashing algorithm to produce the signature for each frame in the digital video material during encoding of the digital video material. Applicant has amended claims 2 and 26, which originally included the recitation of the hashing algorithm, to be of independent form and has canceled their respective parent claims 1 and 25. Applicant has amended independent claim 13 to include the aspect of the hashing algorithm in correspondence with claim 2. Further, claims 12 and 27 have been amended to maintain dependency on a pending claim, rather than canceled claims 1 or 25. Applicant respectfully submits that no new matter has been added by these amendments nor has the scope of the claims been changed. Applicant additionally respectfully submits that the cited art fails to teach, show, or suggest the recited invention.

With regard to claims 2 and 26, the Examiner rejected these claims as being unpatentable over Copriviza in view of Echeita and further in view of Iggulden. In making the rejection, the Examiner cites Copriviza for disclosing the recited embedding of a signature in each frame of video material and computing play-out statistics based on the signature but admits that Copriviza fails to disclose that the video material is digital. Echeita is cited for teaching a method for monitoring quality of service of

digital video for combination with Copriviza. Both Copriviza and Echieta are admitted by the Examiner as failing to disclose utilizing a hashing algorithm to produce the signature, as recited in claims 2 and 26. Thus, the Examiner cites Iggulden for combination with Copriviza and Echeita, and states, "Iggulden discloses utilizing a hashing algorithm to produce a signature for each frame in a video material (col. 6, lines 25-36), allowing the material to be quickly identified in real time." Applicant respectfully disagrees with the Examiner's position.

In the cited section of col. 6, lines 25-36 of Iggulden, Iggulden merely mentions that a signature being detected from a segment of a television broadcast "may, for example, be a binary hash code." Applicant respectfully submits that Iggulden fails to teach, show, or suggest that a hashing algorithm is utilized to produce the signature for each frame in the digital video material and/or during encoding of the digital video material, as recited in the independent claims. Referring to Figures 8, 9, 10, and 11 of Iggulden and their discussion (col. 15, line 29+), the 'signature' is Iggulden is taught as being 'read' after receipt of the television broadcast signal and upon detection of an event marker in the television signal. The 'reading' of the signature actually involves producing a bit string based on luminance levels of selected lines from a single test frame of the received data.

Thus, the signature is formed after receipt of the test frame during broadcast, and not as a part of any type of encoding. In contrast, utilization of the hashing algorithm to produce the signature in Applicant's recited invention occurs by a program source during encoding. Further, while Iggulden utilizes a single test frame to produce a signature for the received signal, Applicant fails to see any teaching or suggestion that each frame has a signature that is generated utilizing a hashing algorithm, as recited in Applicant's invention. Therefore, Applicant respectfully submits that by not including a signature produced with a hashing algorithm in every frame, and by not producing the signature with a hashing algorithm during the encoding of the video material, Iggulden fails to teach or suggest the recited hashing algorithm used to generate a signature in every frame of digital video material.

Additionally, Iggulden does not teach or suggest that a hash code signature is needed for digital television signals. Rather, Iggulden states that “if the television signal is digital, ... the signature is simply based on selected bits within one or more selected digital frames.” (col. 19, lines 12-14) Thus, there is nothing from Iggulden to teach or suggest that digital video material utilizes a signature in every frame produced with a hash code algorithm during encoding of the digital video material.

Given the admitted lack of disclosure of utilization of a hash code algorithm to produce a signature for each frame in a digital video material by Copriviza in view of Echeita, and the deficiencies of the cited art of Iggulden to compensate for these deficiencies as presented herein, Applicant respectfully submits that the recited invention of independent claims 2, 13, and 26, which each include the aspect of the utilization of a hash code algorithm to produce a signature during encoding of digital video material, is allowable over the cited art. Accordingly, Applicant respectfully requests withdrawal of the rejections of independent claims 2, 13, and 26.

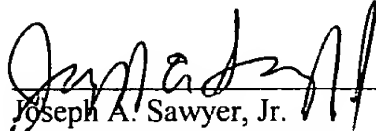
Further, claims 3-12, 13-24, and 27-29 depend directly or indirectly on one of the independent claims. Thus, these claims incorporate the features of one of the independent claims, while adding other features. Accordingly, these claims also are respectfully submitted as allowable over the cited art for at least those reasons associated with the independent claims, as presented herein. In addition, Applicant respectfully submits that the art cited in the separate rejections for some of these dependent claims is insufficient to overcome the deficiencies of Copriviza in view of Echeita and further in view of Iggulden. Therefore, Applicant respectfully requests withdrawal of the rejections against these claims.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,
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April 12, 2004

Date



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